**ABSTRACT**

The adsporption capacity of the activated carbon prepared from Gulmohar tree fruits was evaluated by the removal of methylene blue from aqueous solution by adsorption under different conditions, such as agitation time, initial dye concentration, adsorbent dosage, particle size and pH. Desorption study was carried out to elucidate the mechanism of adsorption. The time required to attain equilibrium was found to be 45 and 60 min for 20, 40 and 60, 80 mg/L dye concentration, respectively. The adsorption followed a pseudo first order rate equation and the experimental data follows Freundlich and Langmuir isotherm models. The adsorption capacity was found to be 96.15 mg/g of Gulmohar tree fruit carbon (GTFC) at the pH of 6 ± 0.2 and at room temperature (30 ± 2 °C) for the particle size of 125-250 μm. The complete removal of the dye from 20 and 40 mg/L of aqueous solution was possible with 1.2 and 1.4 g of the activated carbon, respectively. The percent removal was increased with decrease in the particle size of the adsorbent. The influence of pH on dye removal was insignificant and the adsorbed dye could not recover in both acidic acid basic conditions.